AMENDMENTS TO THE SPECIFICATION:

Please delete the paragraph on page 26, lines 10-14, and substitute therefor the following new paragraph:

-- Fig. 11 is a vertical sectional view of the vicinity of a crucible showing the schematic configuration of a fifth embodiment of the apparatus for producing a single crystal, according to the present invention, under the condition of a straight body portion~~forming a taper portion~~ in a formation process. --

Please delete the paragraph bridging pages 47 and 48, and substitute therefor the following new paragraph:

-- As shown in Fig. 5, the apparatus for producing a single crystal of the present embodiment is configured to include a cylindrical vessel 19 which is disposed with an axis line being set in vertical direction and which has a rectangular vertical cross section, a refractory 9 which is a cylindrical heat insulating material supported by a support member 21 on the upper surface of a bottom 19a of the vessel 19 and which is disposed concentrically with the vessel 19, a crucible 1 disposed concentrically with the refractory 9, on a bottom 9c~~9a~~ of the refractory 9, a crystal transporting device including a rod-shaped or band-shaped seed holder 17 which is inserted through an opening formed in a central portion of an upper surface 19b of the vessel 19 and which is disposed while being allowed to vertically move along a center line of the refractory 9, a seed crystal 13 attached to the lower end of the seed holder 17, a radiation heat blocking tube 33 serving as an in-crucible radiation heat blocking member disposed concentrically with the rod-shaped or band-shaped seed holder 17 and configured to be allowed to vertically move along the center line of the refractory 9, a radiation heat blocking tube transporting device serving as an in-crucible radiation

heat blocking member transporting device which is inserted through an opening formed in the central portion of the upper surface 19b of the vessel 19 and which vertically transports the radiation heat blocking tube 33 along the center line of the refractory 9, and a high-frequency coil 11 for high-frequency induction heating of the crucible 1, the coil being wound around the outer perimeter of the lower portion of the refractory 9, concentrically with the refractory 9. --

Please delete the paragraph bridging pages 48 and 49, and substitute therefor the following new paragraph:

-- The vessel 19 is in the shape of a cylinder with the top and the bottom being closed, and the upper surface 19b is provided with the above-described opening for passing through the seed holder 17 and an opening for passing through a support member 35 of the rod-shaped radiation heat blocking tube 33 included in the radiation heat blocking tube transporting device. The refractory 9 is in the shape of a cylinder in which the lower end is closed with the bottom 9c~~9a~~ and the upper portion is opened. The high frequency coil 11 is wound around from the lower end portion of the refractory 9 up to the position higher than the position of the outer perimeter surface of the refractory 9, in accordance with the upper end portion of the crucible 1 in order to heat the entire crucible 1. The crucible 1 is filled in with a melt 25 serving as a material for a single crystal to such an extent that the liquid level reaches a position somewhat lower than the upper end of the crucible 1. --

Please delete the paragraph on page 59, lines 13-22, and substitute therefor the following new paragraph:

-- Furthermore, a crystal grows uniformly all over the surface 15c of the single crystal 15 in contact with the melt 25. In addition, since no member blocks the heat dissipation from the taper surface of the taper portion 15a, the cooling rate of the crystal growth surface is increased, and a large crystal growth rate can be maintained. Since the radiation heat shielding plate 39 is made of a metal, the temperature of the radiation heat shielding plate 39~~21~~ is increased by high-frequency heating and, therefore, there is the effect of heating the inside of the crucible 1. --

Please delete the paragraph on page 61, lines 3-16, and substitute therefor the following new paragraph:

-- The fifth embodiment of the technology of producing a single crystal, according to the present invention, will be described below with reference to Fig. 10 and Fig. 11. Fig. 10 and Fig. 11 are vertical sectional views of the vicinity of a crucible showing the schematic configuration of the apparatus f or producing a single. crystal, according to the present invention, ~~under the condition of forming a taper portion~~ in a formation process. In the present embodiment, the same elements and operations as those in the third and the fourth embodiments are indicated by the same reference numerals as in the above-described embodiments, explanations thereof will not be provided, and configurations, characteristic portions, and the like different from those in the third and the fourth embodiments will be described. --

Please delete the paragraph beginning on page 80, line 25, through page 81, line 25, and substitute therefor the following new paragraph:

-- On the other hand, with respect to a known apparatus for producing a single crystal, provided with no bottom-side heating member 65, in the distribution of the heating value of the bottom per unit volume, a peak is observed only at the periphery of the bottom of the crucible 1. As a result, in the temperature distribution of the bottom~~side wall~~ of the crucible, as is clear from the temperature distribution 203 indicated by a broken line shown in Fig. 18, a peak is observed only at the periphery of the bottom of the crucible. In the known apparatus for producing a single crystal, the central portion of the crucible is in a condition of being at a lowest temperature. The temperature of the central portion of the bottom of the crucible becomes lower as the diameter of the bottom of the crucible is increased. Therefore, in the known apparatus for producing a single crystal, a melt flow which rises from the central portion of the bottom of the crucible may not be formed depending on the conditions, e.g., the size and the shape of the crucible, and thereby, a melt flow which spreads in the radius direction, from the solid-liquid interface portion of the single crystal toward the inner surface of the side wall of the crucible, may not be formed. Consequently, the shape of the solid-liquid interface portion of the single crystal formed connecting with the seed crystal is disturbed and becomes in an uneven state, a crystal having poor quality may be produced, and cracks may occur in the crystal. --

Please delete the paragraph bridging pages 82 and 83, and substitute therefor the following new paragraph:

-- On the other hand, in the apparatus for producing a single crystal of the present embodiment, as shown in Fig. 17, since the bottom-side heating member 65 is disposed on the crucible 1, the heating value at the central portion of the bottom 1b of the crucible 1, as well as the periphery of the bottom 1b. becomes higher than those of the other portions. Since the heating value at the central portion of the bottom lb is increased, the temperature of the central portion of the bottom 1b of the crucible 1, as well as the periphery of the bottom 1b, becomes higher than those of the other portions. When the temperature of the central portion of the bottom lb is increased as described above, a flow of the melt 25~~31~~ is formed, while the flow rises in the vicinity of the center axis of the crucible 1 from the central portion of the bottom 1b along this center axis to reach the vicinity of the solid-liquid interface portion 59 of the seed crystal 13 and the single crystal 15, and spreads in the radius direction, from the vicinity of the solid-liquid interface portion 59 of the seed crystal 13 and the single crystal 15 toward the inner surface of the side wall la of the crucible 1. --